

What's new in ArcGIS 10.2.1

ArcGIS 10.2.1 includes new functionality throughout the ArcGIS platform. That functionality is summarized in the following sections:

Geoprocessing

There are a number of new tools, improvements to existing tools, and new ArcPy functions at ArcGIS 10.2.1.

Highlights

Following are a few new tools and improvements of particular interest. Other new tools and improvements can be found in the toolbox sections below.

Renaming fields

The new Alter Field Properties tool allows you to rename a field and change its alias. The input table must be a geodatabase table or feature class; shapefiles and coverages cannot have their field properties altered.

Near, Generate Near Table, and geodesic distance

The Generate Near Table and Near tools have been completely rewritten to be dramatically faster and they now have an optional **Method** parameter that determines how distances are computed. When **Method** is set to GEODESIC, distances are calculated across the earth's surface. This is most accurate when the distance between features is large and you want to minimize the distortion inherent in all projected coordinate systems, particularly in projections like Web Mercator. When PLANAR, Euclidean distances are calculated using the coordinates of the features and is appropriate for projections that minimize distance distortion or when the distance between features is small.

The improvements made to Generate Near Table have not yet been implemented for the Point Distance tool. In most workflows, you can use Generate Near Table in place of Point Distance.

New conflation tools

The Editing toolbox now has a new Conflation toolset with five new tools for edge matching and rubber sheeting.

Tools	Description
Edgematch Features	Modifies input line features by spatially adjusting their shapes, guided by the specified edgematch links, so they become connected with the lines in the adjacent dataset.
Generate Edgematch Links	Finds matching but disconnected line features along the edges of the source data's area and its adjacent data's area, and generates edgematch links from the source lines to the matched adjacent lines.
Generate Rubbersheet Links	Finds where the source line features spatially match the target line features and generates lines representing links from source locations to corresponding target locations for rubbersheeting.
Rubbersheet Features	Modifies input line features by spatially adjusting them through rubbersheeting, using the specified rubbersheet links, so they are better aligned with the intended target features.
Transfer	Finds where the source line features spatially match the target line features and

Attributes	transfers specified attributes from source features to matched target features.
------------	---

Tools in the Conflation toolset

In addition to these five new tools, the Data Comparison toolset in the Data Management toolbox has a new Detect Feature Changes tool that is useful in conflation workflows.

Similarity Search

The Spatial Statistics toolbox has one new tool, Similarity Search that identifies which candidate features are most similar or most dissimilar to one or more input features based on feature attributes.

Add Geometry Attributes

The Add Geometry Attributes tool adds new attribute fields to the input features representing the spatial or geometric characteristics and location of each feature, such as length or area and x-, y-, z-, and m-coordinates.

Geoprocessing services

You can find geoprocessing services when searching ArcGIS Online and open the link to the service. Opening the link will add the geoprocessing service as a toolbox to the ArcToolbox window.

3D Analyst toolbox

The following tools now support the LAS dataset:

- Stack Profile
- Surface Aspect
- Surface Contour
- Surface Slope

The default resampling technique for the following tools has been changed from Nearest Neighbor to Bilinear interpolation:

- Raster Surface toolset: Aspect, Contour, Contour List, Curvature, Cut Fill, Hillshade, Slope.
- Visibility toolset: Observer Points, Viewshed, Visibility

Data Management toolbox

New tools

Migrate Relationship Class tool is used to prepare your relationship class or attachment to participate in feature services that will be used in offline editing workflows. See Authoring feature services for information on preparing data for offline use.

The Data Comparison toolset has one new tool:

- Detect Feature Changes

As mentioned in the highlights section above:

- The Fields toolset has the new Alter Field Properties tool for renaming fields and their alias.
- The Features toolset has the new Add Geometry Attributes tool adds new attribute fields to the input features representing the spatial or geometric characteristics and location of each feature.

The Geometric network toolset has three new tools:

Find Disconnected Features In Geometric NetworkVerify And Repair Geometric Network ConnectivityRebuild Geometric Network

The Versions toolset has two new tools for version conflict management:

Add Field Conflict FilterRemove Field Conflict Filter

The Raster toolset has two new tools:

Export Mosaic Dataset GeometryExport Mosaic Dataset Items

Editing toolbox

New tools

As described in the highlights section above, there is a new Conflation toolset containing five new tools:

Edgematch FeaturesGenerate Edgematch LinksGenerate Rubbersheet LinksRubbersheet FeaturesTransfer Attributes

Geostatistical Analyst toolbox

Improvements have been made to the Empirical Bayesian Kriging, and GA Layer to Contour tools.

For more information, see the Extensions section below.

Network Analyst toolbox

New tools

The Server toolset has a new tool:

Find Closest Facilities

Tools with new parameters

Update Traffic Data has a new **Speed Unit** parameter so you don't need to convert your traffic feed data into miles per hour.

Spatial Statistics toolbox

New tools

As described in the highlights section above, the Mapping Clusters toolset has one new tool:

Similarity Search

Spatial Analyst toolbox

A new Rescale by Function tool has been added to the Reclass toolset.

Improvements have been made to the Kernel Density and Point Density tools.

The default resampling technique for all the Surface tools (except for Contour with Barriers) has been changed from Nearest Neighbor to Bilinear interpolation.

For more information, see the Extensions section below.

Python and ArcPy

ArcGIS 10.2.1 has been upgraded to include Python 2.7.5. Third-party Python libraries have also been upgraded: NumPy has been upgraded to 1.7.1 and matplotlib to 1.3.0.

ArcPy geometry objects now support `cut`, `measureOnLine`, `snapToLine`, and `queryPointAndDistance` methods.

Previously existing geometry methods `getArea` and `getLength` now have an optional `units` argument to control the units the values will be calculated in.

Geodata

Geodatabases and databases

New tools are available to work with geometric networks

As mentioned in the Geoprocessing section, three new tools have been added to help discover and correct invalid data within a geometric network:

- Find Disconnected Features In Geometric Network
- Verify And Repair Geometric Network Connectivity
- Rebuild Geometric Network

All three tools can be found in the Geometric Network toolset of the Data Management toolbox.

In addition, the **Verify Connectivity** and **Repair Connectivity** commands on the **Geometric Network Editing** toolbar in ArcMap now have the option to be run against the geometric network features within the current extent of the map to perform more exhaustive checks on those features. These checks are limited to an extent because they compare the geometric coincidence of network features with the logical connectivity and, therefore, take more time to complete.

New version conflict management tools and functionality are available

Buttons have been added to the **Conflict Management** dialog box that allow you to view only those fields in conflict. For more information, see [A quick tour of reviewing conflicts](#).

Also new for version conflict management at ArcGIS 10.2.1 are the following two geoprocessing tools, which provide the ability to filter specific fields during conflict detection if the **Define Conflicts by Attribute** setting is used during the reconcile process. These tools can be found in the Versions toolset of the Data Management toolbox.

- Add Field Conflict Filter
- Remove Field Conflict Filter

You can use the new **ListFieldConflictFilters** ArcPy function to determine which fields have conflict filters.

New database version and operating system support

Support has been added to connect to new versions of IBM DB2, PostgreSQL, and Oracle from ArcGIS 10.2.1. For information on supported database versions, see the [ArcGIS RDBMS system requirements](#) pages.

Also beginning with ArcGIS 10.2.1, you can connect from ArcGIS for Server on a Linux box to a DB2 database on the z operating system.

Raster

You can now view Landsat 8 data in its native format. The Landsat 8 raster type allows you to ingest Landsat 8 data into your mosaic dataset. The Landsat 8 raster product allows you add layers, that are processed on-the-fly, into the display.

There two new raster geoprocessing tools:

Tool name	Description
Export Mosaic Dataset Items	Outputs all or selected processed mosaic dataset items to a specified folder and format.
Export Mosaic Dataset Geometry	Outputs the footprint, boundary, and seamlines of a mosaic dataset to feature classes.

Additionally, there are existing geoprocessing tools that have new parameters added:

Tool name	New parameters
Register Raster	Maximum RMS
Split Raster	Split Polygon Feature Class, Clip Type, and Template Extent

There is a new raster function available:

Function name	Description
Binary thresholding	Convert your raster into foreground and background values, based on the Otsu algorithm.

Lidar

The LAS dataset now supports compressed lidar data in the form of *.zlas files, which can be made with the compression utility found on the 3D GIS community gallery. The files are highly compressed and directly usable. You simply add them to a LAS dataset and start mapping and analyzing. There's no need to decompress them first. They have the added benefit of including statistics and spatial indexes, that regular LAS files don't have, so they're actually easier and more efficient to use.

CAD

Direct-read support has been certified for the AutoCAD 2014 DWG drawing file format, software version 19.1. This DWG file format was introduced by Autodesk for all AutoCAD 2013 and AutoCAD 2014 related products and is a critical format for customers who work with AutoCAD source data.

Metadata

A new ISO 19139 metadata style is available that exports XML files that reference the GML 3.2.1 namespace and validates with XML Schemas that also reference this namespace. For more information about this new style, see Support for ISO metadata standards.

Geocoding

Single-field batch geocoding

In addition to geocoding a table of addresses in multiple fields, you can geocode addresses that are stored in a single field. A single input field stores the complete address, for example, 303 Peachtree St NE, Atlanta GA 30308. See Geocoding a table of addresses in ArcMap or Geocode Addresses geoprocessing tool.

Zooming to found locations

Zooming to the predefined area of the found location is supported in the *Find* dialog box, **Geocoding** toolbar, or *Interactive Rematch* dialog box. This feature is possible when predefined x,y minimums and maximums exist for each feature from the reference data. See Understanding address locator styles.

Local search on a specified proximity

Local search is enabled when you zoom in to the map on a radius that is less than 50,000 meters when using the ArcGIS Online World Geocoding service in ArcMap. ArcGIS sorts the candidates based on the proximity to the center of the map. The priority of candidates within this area is boosted relative to those outside the area. If no candidates are found in the area, candidates outside the area are searched.

Locator as ArcGIS Runtime content

By enabling the locator to work with ArcGIS Runtime, your Runtime applications can geocode against the locator, including when disconnected from the Internet.

Services

For a summary of what new and improved functionality is available in ArcGIS 10.2.1 for Server and ArcGIS 10.2.1 Web Adaptor, see What's new in ArcGIS 10.2.1 for Server. For Portal for ArcGIS, see What's new in Portal for ArcGIS 10.2.1.

Extensions

ArcGIS Geostatistical Analyst extension

Empirical Bayesian Kriging now supports additional semivariogram models. These additional models will allow more accurate modeling of data with different spatial properties.

The performance of GA Layer to Contour tool has been improved by utilizing multiple computer cores.

The contouring algorithm for drawing geostatistical layers has been made parallel to utilize multiple computer cores. This will be most noticeable when using Empirical Bayesian Kriging.

ArcGIS Network Analyst extension

ArcGIS Online network services

If you don't have access to reliable street data or a Network Analyst license, or even to ArcGIS for Desktop, it's still possible to perform network analyses by using ArcGIS Online services.

The ArcGIS Online network services reference a continually growing, worldwide dataset of streets, which Esri and its partners curate. Use an organizational account and the Ready-To-Use Services in ArcMap to generate service areas, find closest facilities, route one vehicle at a time, or route an entire fleet of up to 100 vehicles to optimally service as many as 20,000 orders. (The Ready-To-Use Services are available in the Catalog window in ArcGIS 10.2 for Desktop and later releases.)

If you seek a simple solution or don't have access to ArcMap, solve network problems in your web browser. With an organizational account, you can perform analysis in the ArcGIS.com Viewer, including generating drive-time areas and finding what's nearest in terms of driving time or driving distance.

ArcGIS Runtime transportation networks

Route vehicles on mobile devices, even when disconnected from the Internet, by using ArcGIS Runtime and transportation networks. ArcGIS 10.2.1 lets you package a network dataset into a transportation network, which you can distribute with your Runtime application to support offline routing. By also including a Runtime-enabled locator, your offline users can find addresses or other locations and route between them.

Network Analyst Tools Toolbox

Find Closest Facilities was added to the Network Analyst Tool toolbox to make it easier to create services to find the nearest facilities, such as restaurants, hospitals, and ATMs.

Generate Service Areas and Find Closest Facilities have a Time Zone Usage parameter that lets you choose between specifying UTC times or times based on the time zone in which the input points are located.

Network Analyst Python module

`GenerateDirectionsFeatures`, a new function in the Network Analyst Python module, produces text directions as a feature class that pairs each piece of the text direction with a corresponding line feature on the map. Use the output feature class to visualize turns and other maneuvers. Also, `StreetDirectionProperties` lets you learn what languages, units, and so on are available for directions so it's easier to work with and generate language- and region-specific directions.

ArcGIS Spatial Analyst extension

New tools for Spatial Analyst

There is a new tool in the Reclass toolset for reclassification of continuous raster data. It rescales the input raster values by applying linear and nonlinear transformation functions and then transforming the resulting function values onto a specified continuous evaluation scale.

Rescale by Function

Spatial Analyst Python module

A set of new Transformation Function ArcPy classes has been added to support the new Rescale by Function tool.

Improved Density tools

The Kernel Density and Point Density tools have an improved method for calculating the default radius.

Improved Surface tools

For the tools in the Surface toolset, the default resampling method is changed from Nearest Neighbor to Bilinear. This is to give improved results when analyzing continuous raster surfaces.

Data Interoperability extension

The Data Interoperability Extension now supports Safe Software's Feature Manipulation Engine 2013 SP1 (FME 2103 SP1). FME 2103 SP1 includes enhanced support for additional column types in Excel and reading and writing of the Salesforce data format.

Apps

See these topics for new functionality in apps:

- Operations Dashboard for ArcGIS
- Collector for ArcGIS
- ArcGIS app for smartphones and tablets (Android, iOS, Windows Phone)
- ArcGIS for Windows Mobile
- ArcPad

SDKs and APIs

- New software development kits (SDKs) released since ArcGIS 10.2 include:
 - ArcGIS Runtime SDK for OS X
 - ArcGIS Runtime SDK for .NET
 - ArcGIS Runtime SDK for Qt
- See these topics for what's new in existing mobile and Runtime SDKs:
 - ArcGIS Runtime SDK for Android
 - ArcGIS Runtime SDK for iOS
 - ArcGIS Runtime SDK for Java (Windows and Linux)
 - ArcGIS Runtime SDK for Windows Mobile (previously ArcGIS Mobile SDK)
 - ArcGIS Runtime SDK for Windows Phone
 - ArcGIS Runtime SDK for WPF (for Windows)
 - ArcPad (includes what's new for developers)
- See the following topics for information on what's new in Web APIs:
 - ArcGIS API for Flex
 - ArcGIS API for JavaScript
 - ArcGIS API for Silverlight
- For information on changes and new features for REST developers, see:
 - ArcGIS REST specification

Copyright © 1995-2013 Esri. All rights reserved.

12/18/2013

<http://resources.arcgis.com/en/help/main/10.2/016w/016w0000005v000000.htm>